

Enlarging Meter Timer – Concept Description

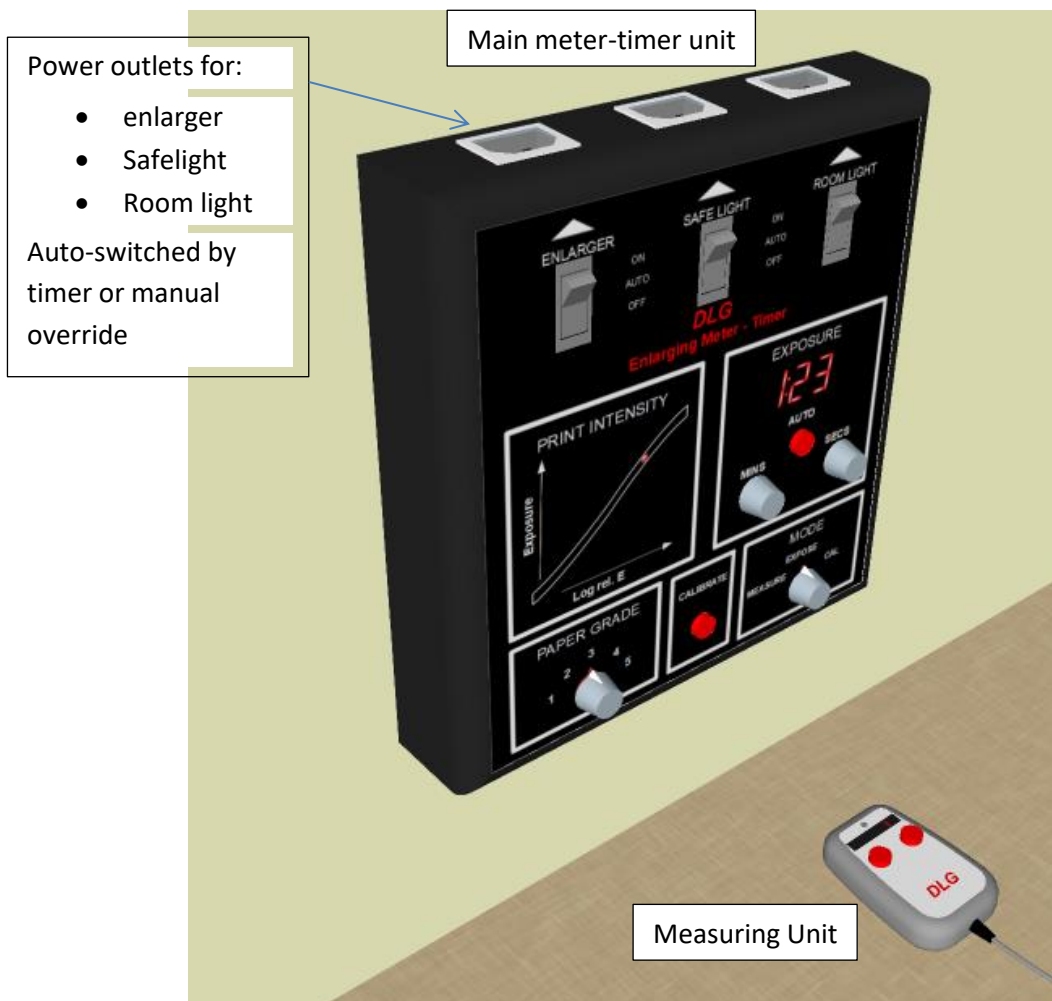
Introduction

The enlarging meter-timer is intended as an assistant for “dry side” darkroom operations, for use when projection printing (“enlarging”). It is designed to allow measurement of the projected image intensity at chosen spot points to allow accurate setting of exposure time and optimum choice of paper grade, with the facility for automatic control of the enlarger exposure, darkroom safelight and normal room light.

The unit is designed with ergonomics and ease of use as a primary objective, avoiding complex keypads and using tactile switches and analogue rotary controls as far as possible.

The Meter Timer

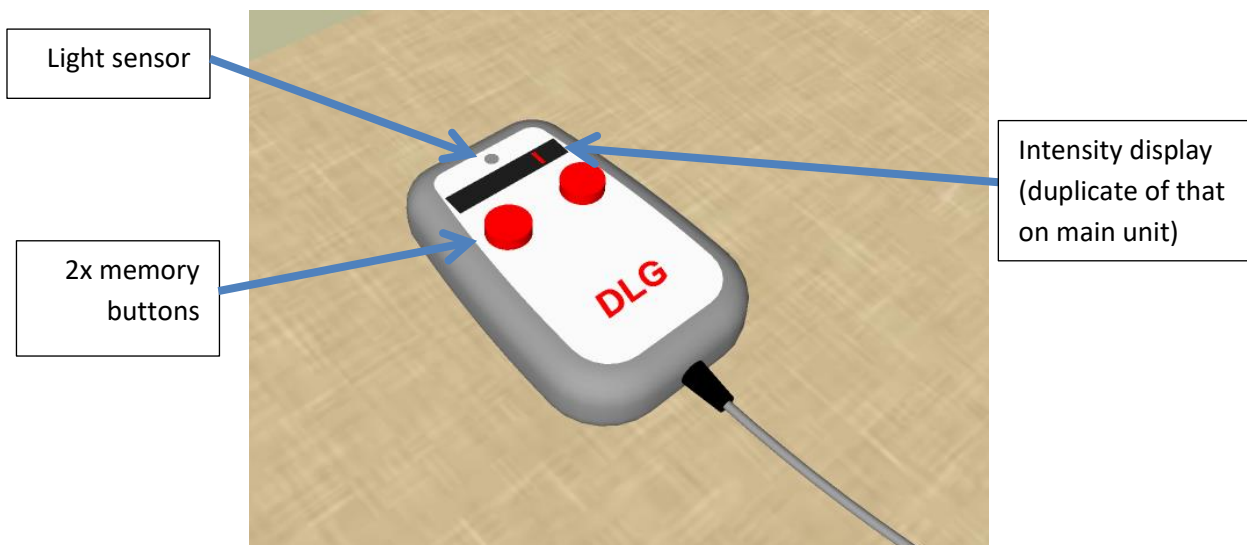
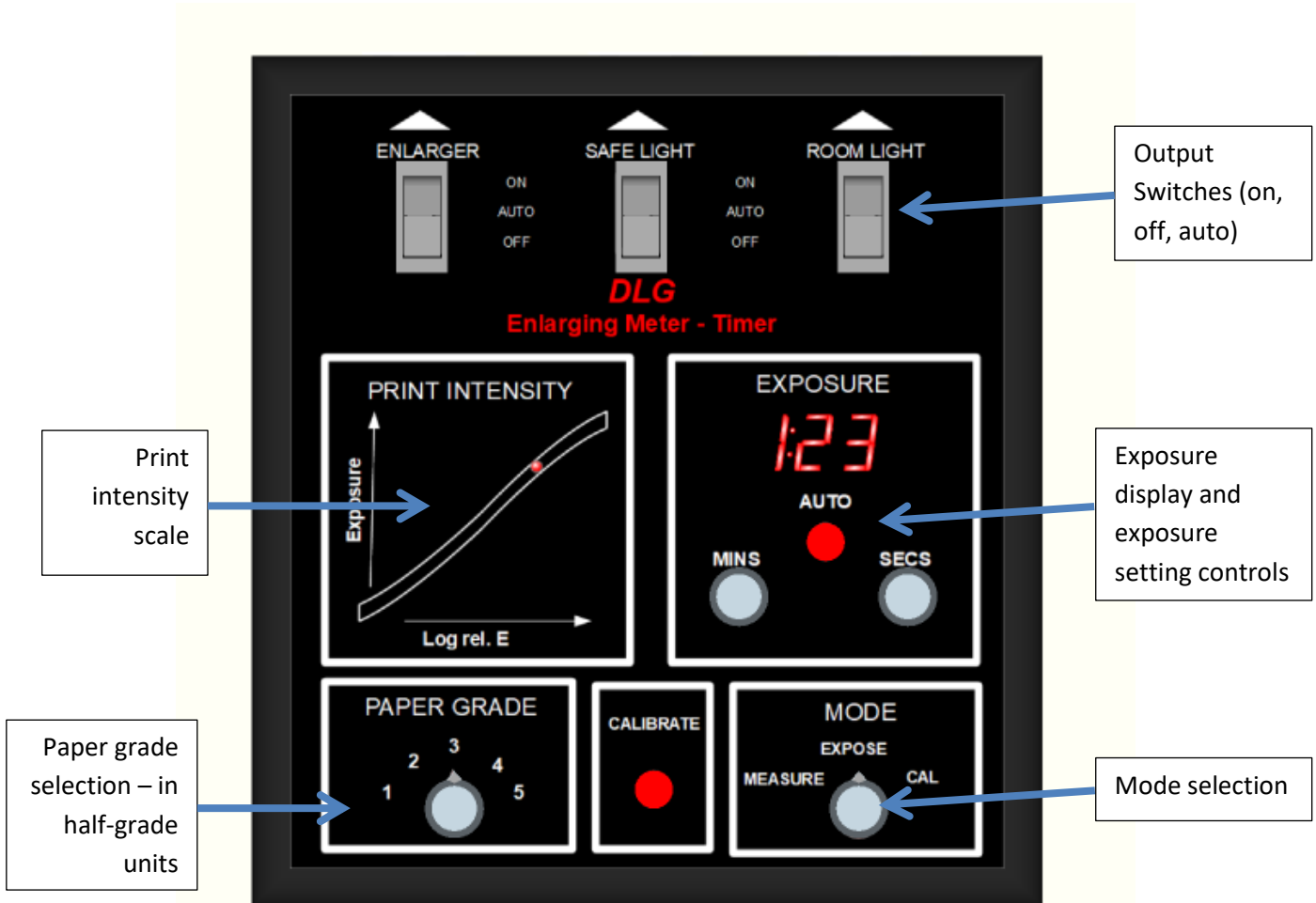
The meter-timer consists of the main unit, intended for wall mounting, and a separate small hand-held sensor unit, to be used on the enlarger easel for measuring the image brightness.



Operation

The timer is powered from the mains supply (universal power supply for 100 to 240 VAC) and has outlets provided for enlarger, room light and safe light.

Controls



Measure Mode

In “measure” mode the room light is switched off, the safelight off and the enlarger on. The sensor may be moved around the easel to measure the light level at any point in the image. The intensity scale indicates the predicted print intensity at the measured point, for the exposure time as set and indicated on the exposure display and for the paper grade selected. The intensity scale is displayed not only on the wall-mounted timer unit but also on the hand-held metering unit, for convenience.

Pressing the “auto” button will automatically set the exposure time to give a mid-level intensity in the print. The exposure time is displayed.

The two memory keys on the measuring unit allow the intensity at two chosen points in the image to be stored while measuring a third. Typically these would be used to record the highlight and shadow extremes. These two points are indicated on the intensity scale along with the currently measured point. Adjustment of the exposure time and paper grade controls will be reflected in the intensity scale.

Pressing the “auto” button when the memories are active will result in the meter adjusting the exposure reading to bring the three intensity points within the intensity scale.

Expose Mode

In expose mode the enlarger is switched off and the safelight on. When the photographic paper has been positioned under the enlarger the “expose” button is pressed. This will switch the enlarger on and start a countdown of the set exposure. At the end of the exposure time the enlarger is switched off. During the exposure a one-second interval beep is sounded.

Calibrate Mode

Calibrate mode allows the meter/timer unit to be calibrated against a test strip printed by the user. A test strip is run (using a blank negative) in the usual manner, processed and the mid-grey exposure determined by comparison with a suitable test card. The required exposure is entered via the exposure setting control and the calibrate button pressed to store the data in non-volatile memory. It is possible to recalibrate whenever new paper types are used if necessary, or to restore the factory default setting if this is later required.

Optional Brightness Compensation

Cold cathode type lamps are noted for their changing brightness for some time after being switched on, making it difficult to effectively measure and set exposure times, whether using a timing meter such as this one or using test strips. Furthermore, even incandescent lamps suffer significant brightness variations with even small levels of voltage instability. The DLG Enlarging Meter-Timer provides the means to compensate for these variations by measuring the light level and adjusting the exposure accordingly. A second light sensor is plugged into the meter-timer and positioned at a fixed point where it can track any changes in the light level. Pressing the “compensate” button sets the datum light level value in the meter-timer and any subsequent changes in the lamp brightness will be compensated for by adjusting the timer countdown rate accordingly during the exposure.

Preliminary Specifications

Exposure Time	0 seconds to 10 minutes, one second resolution
Intensity Scale	32 point covering a print intensity range 0 to 2, for a log relative exposure range set according to the paper grade control
Paper Grade Control	Grade 0 to 5 in ½ grade steps
Sensor type	Silicon photodiode
Power Supply	AC mains (100 to 240 VAC, 50 to 60 Hz. Compliant with EN 60950.
Outlet power	IEC-type three pin connectors for enlarger, room light and safelight Outlet switching “off”, “auto” (controlled by timer) and “on”. Outlet voltage as inlet voltage Maximum outlet power 3A.
Size (timer)	preliminary - 8” wide, 6” high, 2” deep approximately
Size (light sensor)	to be advised.
Displays	safelight red LED